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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/289,346 | 04/09/1999 | LINDA HANLEY-BOWDOIN | 5051-458 | 8481 |

20792 7590 01/15/2002

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EXAMINER

HELMER, GEORGIA L

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1638

DATE MAILED: 01/15/2002

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/289,346

Applicant(s)

HANLEY-BOWDOIN ET AL.

Examiner

Georgia L. Helmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 01 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 42-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 42-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Detailed Action

Continued Prosecution Application

1. The request filed on October 1, 2001 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/289,346 is acceptable and a CPA has been established. Claims 1-41 and 56-59 are canceled. Claims 42-55 are pending and are examined in the instant application.

Specification

Information Disclosure Statement

2. A dated and initialed copy of Applicant's IDS form 1449, paper No 8, is attached to the instant Office Action.

Drawings

3. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed. As indicated in the Office Action of March 29, 2001, the specification is objected to because of the following: Figure 8 is referred to in the disclosure but Figure 8 itself is missing. Correction and/or clarification are required. Applicant is reminded that no new matter may be added.

35 U.S.C. 112, second paragraph

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4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 42 – 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter Which applicant regards as the invention.

Claim 42 is to "a nucleic acid construct comprising an expression cassette, which construct comprises..." It is suggested that the second recitation of "construct" be amended to "cassette". The Office interprets that when Applicant states "the Rb binding region" that there is only one Rb binding region. If there is more than one, then "the Rb binding region" lacks antecedent basis. All subsequent recitations of "cassette" and "the Rb binding region" are also rejected.

In Claim 43 the first word should be "The" instead of "A" since it is referring to the nucleic acid construct of claim 42. Further, it is suggested that "*wherein said nucleic acid construct is*" be inserted before "carried" for clarification.

Claim 44 should begin with "The" as discussed in the above paragraph.

Claim 45 should begin with "The" as discussed in the above paragraph. The dependency of this claim should be to claim 44 and not 42, for proper antecedence. It further recites "the oligomerization domain". The Office interprets that when Applicant states "the oligomerization domain" that there is only one oligomerization domain. If there is more than one, then "the oligomerization domain" lacks antecedent basis. All subsequent recitations of "the oligomerization domain" are similarly objected to. The Office interprets that when Applicant states "the DNA cleavage domain" that there is

only one DNA cleavage domain. If there is more than one, then "the DNA cleavage domain" lacks antecedent basis. All subsequent recitations of "the DNA cleavage domain" are similarly objected to. The Office interprets that when Applicant states "the ATPase domain" that there is only one ATPase domain. If there is more than one, then "the ATPase domain" lacks antecedent basis. All subsequent recitations of "the ATPase domain" are similarly objected to.

Claim 46 should begin with "The" as discussed above. This claim recites "the AL1 promoter" which lacks antecedent basis.

Claim 47 should begin with "The" as discussed above. Also, it is suggested that "cell" be inserted after "plant" for proper antecedence.

Claim 48 should begin with "The" as discussed above. Applicant should note the "of of" duplication in this claim.

It should be noted that the claims examined in the instant case (42-55) are directed to nucleic acids but that all sequences recited are polypeptides. This is unclear. However, to expedite prosecution, the Office interprets these claims to mean nucleic acids encoding SEQ ID Nos. 1- 10. Claims reciting SEQ ID. Nos. should be corrected as appropriate.

In claim 50, "said plant cells" lacks antecedent basis.

Claim 51 should begin with "The" as discussed above.

Claim 52 should begin with "The" as discussed above.

Claim 53 should begin with "The" as discussed above

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Claim 54 should begin with "The" as discussed above. "Said plant" lacks antecedent basis. Does Applicant mean plant cells?

In claim 55, "Said plant cells" lacks antecedence. Further, it is suggested that "said *nucleic acid sequence*" be inserted before "comprising a mutation".

35 U.S.C. 112, first paragraph

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 42 – 47 and 50 – 54 are rejected under 35 U.S.C. 112, first paragraph. The specification, while being enabling for nucleic acid constructs containing nucleotide sequences encoding the proteins which are identified by the SED ID Nos. is not enabling for nucleic acid constructs without the nucleotide sequences encoding the SEQ ID Nos.

Applicant's invention "relates to transgenic plants with increased resistance to geminivirus infection and the mutants of the AL1/C1 geminivirus protein useful for producing such plants". This invention is to mutants, and the nature of the art is such that mutants which result in a particular desired phenotype are unpredictable. See Hartl, D. Genetics (1994) pg 213, Jones & Bartlett, London. It is highly unlikely that any random addition, deletion, or substitution, or combinations thereof of any number of bases will result in a mutant having reduced binding in the Rb binding region. It is even more so unpredictable to generate trans-dominant mutants since it is known in the most

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mutations in a gene would not result in a mutant which has trans-dominant negative effect when compared to wild-type. Also, it is highly unpredictable what mutation or combinations of mutations would result in a mutant AL1 protein having increased repression of transcription without further guidance. Other than the mutants encoded by the sequence identified by the SEQ ID Nos. in the specification, it is unclear how one skilled in the art can predictably generate other mutant AL1 proteins having reduced Rb binding, trans-dominant negative mutants having mutations in the oligomerization domain, the DNA cleavage domain, or the ATPase domain without excessive burden and undue experimentation. Applicant has provided no guidance as to how one skilled in the art can predictably generate trans-dominant mutants in any domain—oligomerization, DNA cleavage, or ATPase—without excessive burden and undue experimentation. While one skilled in the art can readily make mutations, one needs to know what mutations to make that would have the desired phenotype before the mutations can be made without undue experimentation. Applicant has provided no guidance on how to predictably eliminate inoperable embodiments from a virtually ad infinitum of possibilities other than by random trial and error, which is an invitation to experiment and does not fully enable the invention as commensurate in scope with the claims. It is suggested that Applicant recite the mutants having the specific SEQ ID No. identifiers in these claims.

6. The polynucleotides encoding SEQ ID Nos. 2 –10 are free of the prior art.


Remarks


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7. No claim is allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Georgia L. Helmer whose telephone number is 703-308-7023. The examiner can normally be reached on 8:30 - 5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on 703-306-3218. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.


Georgia L. Helmer, Ph.D.
Patent Examiner
Group Art Unit 1638
January 14, 2002


PHUONG T. BUI
PRIMARY EXAMINER